LOW BACK VOWELS IN KENTUCKY SPEECH

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1 Introduction

In "The Phonetics of Great Smoky Mountain Speech," Joseph Sargent Hall notes that "as generally in American, there is much instability and vacillation in the low-back vowel group, the unrounded sounds tending to become rounded and the rounded tending to become unrounded" (1942 26) In fact, the distinction between low back vowels is not maintained in a large general area of American speech, such that *Don* and *dawn* sound alike The area of this merger is indicated in the map in Figure 1 Indeed, in "The Three Dialects of English," William Labov has suggested that merger of the low back group is a defining characteristic of a third major dialect of American English, stretching across the middle section of the country (1991 30-31) More recently, in "The Organization of Dialect Diversity in North America," Labov has presented evidence to show that the merger has extended into Kentucky speech, at least in the major urban areas in Fayette and Jefferson counties (1996) The

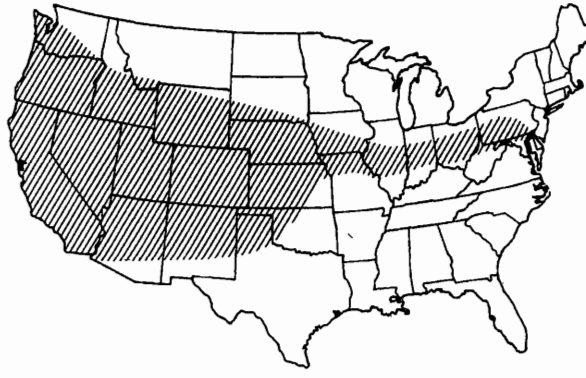

Figure 1 Low Vowel Merger in American Speech (Reprinted by permission of the publishers from DICTIONARY OF AMERICAN REGIONAL ENGLISH, VOLUME I, edited by Frederic G Cassidy, Cambridge, Mass The Belknap Press of Harvard University Press, Copyright © 1985 by the President and Fellows of Harvard College)

current paper presents results of a study of low back vowels in Kentucky speech, including rural and urban areas While the study does confirm Labov's claim that this merger extends into urban areas of central Kentucky, the central finding is that low back vowels are distinct in Kentucky speech overall and in the metropolitan area of Louisville There is significant evidence of a regional distribution of merger vs non-merger, particularly in the speech of informants under 30, indicative of change in progress There is no evidence that gender plays a significant role in the progress of the merger, contrary to the prevailing view that females are in advance of males

2 Method

Data collected from a minimal pair judgment task is the basis of the current study In this task, a speaker is asked to determine whether two words that are identical in meaning are the "same" or "different" The words are phonetically identical except for a single element In the case of the present study, the token pairs are *cot/caught* and *tot/taught*, which vary in pronunciation only with respect to the low back vowel The judgment task is embedded in a larger checklist survey of American English, which is designed to elicit a wide range of information about lexical, morphological, and phonetic variation in present-day English

The study includes 475 informants representing 46 counties across the state of Kentucky Informants range in age from 17 to 92 In terms of gender, 289 of the informants are female, and 186 are male Information on race and education have not been analyzed in the current study

3 Results

The central finding is that most speakers in Kentucky maintain a distinction between the low back vowels Roughly 35%, 167 subjects judge the *cot/caught* pair to be the same, while 308, or 65%, judge them to be different Approximately 36 5%, 173 subjects judge the *tot/taught* pair to be the same, whereas 302, or 63 5%, judge them to be different In an attempt to identify where the low back vowel merger is occurring in Kentucky speech, this basic finding is correlated with the variables of gender, age, and region, and these results are presented in the following sections of the report Each section includes a table indicating raw results, a Chi-Square value, and a P-Value of significance, and a bar chart graph indicating percentage same, on a 100 point scale, for each variable

3 1 Gender

As Figures 2 and 3 show, females slightly lead males overall in indicating a merger of low back vowels As indicated by the Chi-Square and P-Values reported in Tables 1 and 2, this difference is not significant statistically

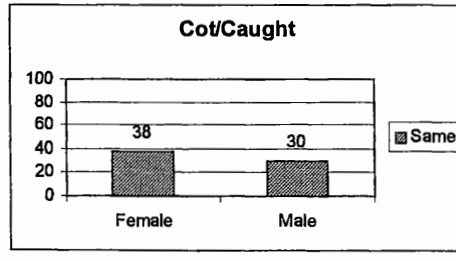

Figure 2 Percentage Cot/Caught Merger by Gender

Table1 Cot/Caught and Gender

	Same	Different	All
Female	110	179	289
Male	57	129	186
All	167	308	475

Chi-Square = 2 731 P-Value = 0 098

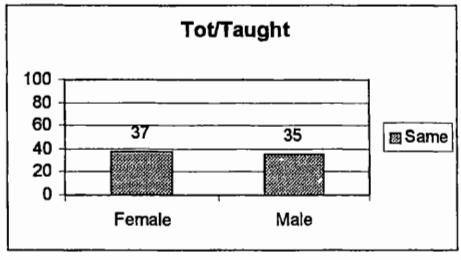

Figure 3 Percentage Tot/Taught Merger by Gender

Table 2 Tot/Taught and Gender

	Same	Different	All
Female	107	182	289
Male	66	120	186
All	173	302	475

Chi-Square = 0 116 P-Value = 0 733

3 2 Age

As Figures 4 and 5 illustrate, even though the percentage is less than half of the total, subjects under 30 tend to judge the low back vowels to be the same to a higher degree than subjects over 30 The Chi-Square and P-Values reported in Tables 3 and 4 suggest that this difference is significant statistically This finding is indicative or suggestive of a change is progress

Table 3 Cot/Caught and Age

	Same	Different	All
Under 30	118	165	283
Over 30	49	143	192
All	167	308	475

Chi-Square = 13 129 P-Value = 0 000

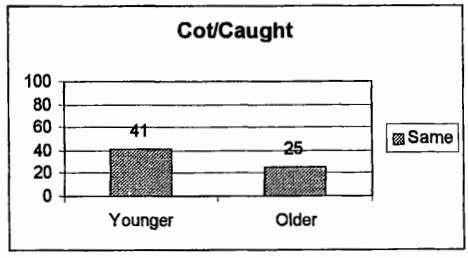

Figure 4 Percentage Cot/Caught Merger by Age

Table 4 Tot/Taught and Age

	Same	Different	All
Under 30	123	160	283
Over 30	50	142	192
All	173	302	475

Chi-Square = 14 993 P-Value = 0 000

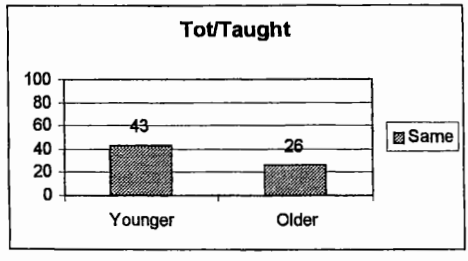

Figure 5 Percentage Tot/Taught Merger by Age

3 3 Region

Subjects in the study represent 46 counties across the commonwealth of Kentucky Dotplot and cluster observation techniques suggest grouping the counties into two groups, with members of each group fortuitously falling into contiguous clusters that are here labeled, for sake of convenience, Northern Counties and Southern Counties As Figure 6 and 7 show, the merger has progressed

Table 5 Cot/Caught and Region

	Same	Different	All
Northern Counties	72	57	129
Southern Counties	95	251	346
All	167	308	475

Chi-Square = 33 145 P-Value = 0 000

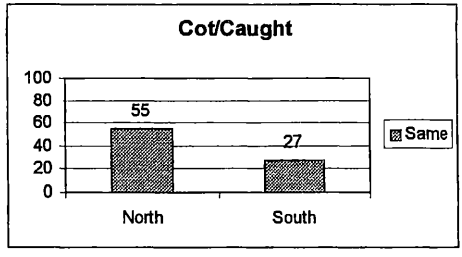

Figure 6 Percentage Cot/Caught Merger by Region

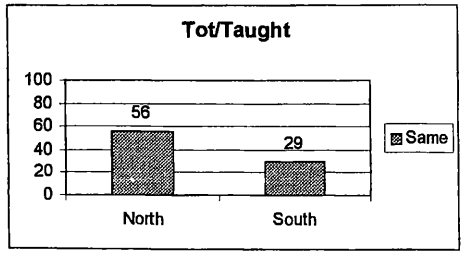

Figure 7 Percentage Tot/Taught Merger by Region

Table 6 Tot/Taught and Region

	Same	Different	All
Northern Counties	73	56	129
Southern Counties	100	246	346
All	173	302	475

Chi-Square = 31 108 P-Value = 0 000

significantly in the northern counties of Kentucky, with over half of the speakers indicating a judgment of same The Chi-Square and P-Values reported in Tables 5 and 6 indicate that this finding is extremely significant statistically It is clear that region plays the central role in this change in progress

3 4 Gender and Age Interaction

The tables and figures in this section are based on a cross tabulation of the variables gender and age in relation to the judgments in the minimal pair tests The Chi-Square and P-Values in Tables 7

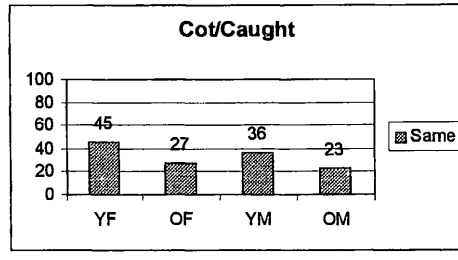

Figure 8 Percentage Cot/Caught Merger by Age and Gender

Table 7 Cot/Caught and Gender and Age Interaction

	Same	Different	All
Female Under 30	79	96	175
Female Over 30	31	83	114
Male Under 30	39	69	108
Male Over 30	18	60	78
All	167	308	475

Chi-Square = 15 862 P-Value = 0 00

Table 8 Tot/Taught and Gender and Age Interaction

	Same	Different	All
Female Under 30	77	98	175
Female Over 30	30	84	114
Male Under 30	46	62	108
Male Over 30	20	58	78
All	173	302	475

Chi-Square = 15 059 P-Value = 0 002

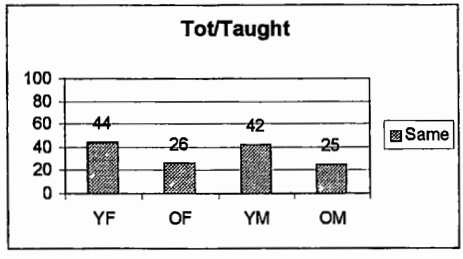

Figure 9 Percentage Tot/Taught Merger by Age and Gender

and 8 suggest that some statistically significant effect is in play here, but it is difficult to determine exactly what this effect is The relative similarities of young male and young female is Figure 9, taken in concert with the findings in sections 3 1 and 3 2 above, imply that the significant variable is age, although it is possible to infer from the relative differences in Figure 8 that young women are taking the lead in the progress of the merger

3 5 Gender and Region Interaction

The tables and figures in this section are based on a cross tabulation of the variables gender and region in relation to the judgments in the minimal pair tests The results of this cross tabulation are more striking than those reported in section 3 4 above This fact is evidenced in the Chi-Square values reported in Tables 9 and 10, which are far greater than the values reported in Tables 7 and 8 above

As noted in section 3 3 above, region plays the most significant role in the process of the back vowel merger Within the scope of this parameter, it seems to be the case that gender is a key secondary factor, more so than the relation between age and gender It is clear in Figure 10 that females in the northern counties are in advance of males in the same region in the progress of the merger of back vowels with respect to the *cot/caught* pair This finding, however, is countermanded by the evidence found in

Figure 11, which shows that males in the northern counties are in advance of females in the same region in the progress of the merger of back vowels with respect to the *tot/taught* pair

Table 9 Cot/Caught and Gender and Region Interaction

	Same	Different	All
Northern Female	50	30	80
Southern Female	60	149	209
Northern Male	22	27	49
Southern Male	35	102	137
All	167	308	475

Chi-Square = 37 638 P-Value = 0 000

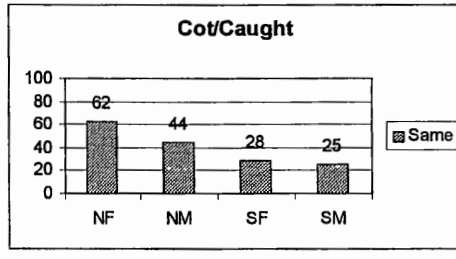

Figure 10 Percentage Cot/Caught Merger by Gender and Region

Table 10 Tot/Taught and Gender and Region Interaction

	Same	Different	All
Northern Female	45	35	80
Southern Female	62	147	209
Northern Male	28	21	49
Southern Male	38	99	137
All	173	302	475

Chi-Square = 31 251 P-Value = 0 000

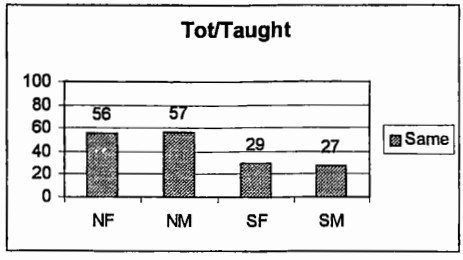

Figure 11 Percentage Tot/Taught Merger by Gender and Region

3 6 Region and Age Interaction

The tables and figures in this section are based on a cross tabulation of the variables region and age in relation to the judgments in the minimal pair tests The interaction of these variables is by far the most significant in accounting for the advance of the merger in the low back vowels under study

As illustrated in both Figures 12 and 13, northern informants under 30 are far in advance of all others in the progress of the merger of the vowels in both the *cot/caught* and *tot/taught* pairs If region is taken at the primary factor in the progress of the merger, it is clear that age is a far more significant secondary factor in the scope of this parameter than is gender This finding is supported by the Chi-Square values reported inTables 11 and 12, which are greater than the values reported in Tables 9 and 10 above

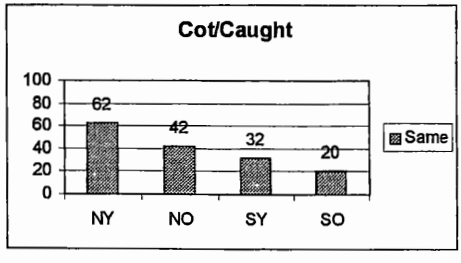

Figure 11 Percentage Cot/Caught Merger and Region and Age Interaction

Table 11 Cot/Caught and Region and Age Interaction

	Same	Different	All
Northern Under 30	54	33	87
Northern Over 30	18	24	42
Southern Under 30	64	132	196
Southern Over 30	31	119	150
All	167	308	475

Chi-Square = 43 086 P-Value = 0 000

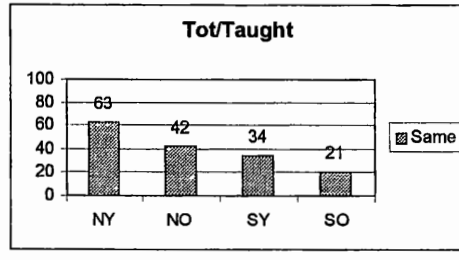

Figure 13 Percentage Tot/Taught Merger and Region and Age Interaction

Table 12 Tot/Taught and Region and Age Interaction

	Same	Different	All
Northern Under 30	55	32	87
Northern Over 30	18	24	42
Southern Under 30	68	128	196
Southern Over 30	32	118	150
All	173	302	475

Chi-Square = 42 729 P-Value = 0 000

3 7 Region and Age and Gender Interaction

The tables and figures in this section are based on a cross tabulation of the variables region, and age, and gender in relation to the judgments in the minimal pair tests This cross tabulation reveals the interaction between age and gender under the scope of the primary factor of region What we see in both Figures 14 and 15 is that older males in the northern counties lag behind in the progress of the merger, while all northern females and northern males under 30 are far in advance in the progress of the merger To risk a pun, it is the "NOM"s who aren't up to date with what is going on in language

Table 13 Cot/Caught and Region and Age and Gender Interaction

	Same	Different	All
Northern Female Under 30	37	19	56
Northern Male Under 30	17	14	31
Northern Female Over 30	13	11	24
Northern Male Over 30	5	13	18
Southern Female Under 30	42	77	119
Southern Male Under 30	22	55	77
Southern Female Over 30	18	72	90
Southern Male Over 30	13	47	60
All	167	308	475

Chi-Square = 45 054 P-Value = 0 000

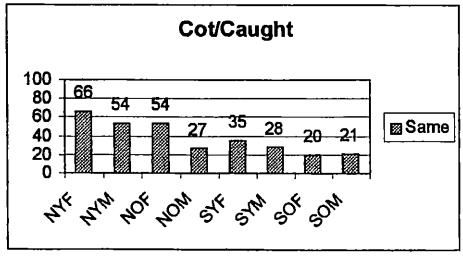

Figure 14 Percentage Cot/Caught Merger by Region and Age and Gender

Table 14 Tot/Taught and Region and Age and Gender Interaction

	Same	Different	All
Northern Female Under 30	34	22	56
Northern Male Under 30	21	10	31
Northern Female Over 30	11	13	24
Northern Male Over 30	7	11	18
Southern Female Under 30	43	76	119
Southern Male Under 30	25	52	77
Southern Female Over 30	19	71	90
Southern Male Over 30	13	47	60
All	173	302	475

Chi-Square = 40 040 P-Value = 0 000

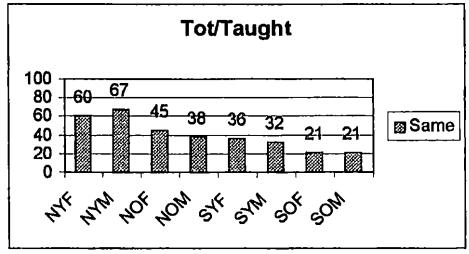

Figure 15 Percentage Tot/Taught Merger by Region and Age and Gender

4 Conclusion

The principal finding of this study is that the merger of low back vowels has progressed into regions of Northern Kentucky Based on the evidence presented here, it is proposed that the map presented in Figure 1 should actually be redrawn to show a southern boundary extending into Kentucky The proposed isogloss is illustrated in the map in Figure 16 The striking feature of the proposed isogloss is that it parallels very closely the route of Interstate 64 across north central Kentucky This result, however, should not be surprising it has long been noted that major transportation arteries and migration routes are boundaries for regional dialects

Another significant finding is that age plays a more significant role in the progress of the merger than does gender This finding is contrary to the conventional wisdom that women are the innovators in the spread of change (Eckert 1989)

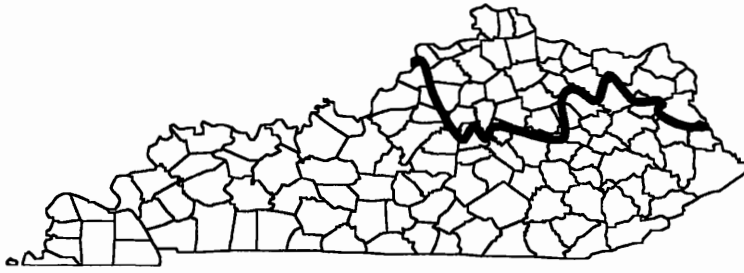

Figure 16 Boundary for Low Vowel Merger in Kentucky Speech
(merged north of isogloss, distinct south of isogloss)

A most significant finding is actually a non-finding the merger has not spread significantly into the southern regions of the state It is possibly the case that the southern vowel shift is advancing north into the southern regions of Kentucky The conditions of the southern vowel shift make a merger of low back vowels unlikely This boundary region then represents a significant area for future research, as it will provide a perfect opportunity to study what happens as competing sound changes clash

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